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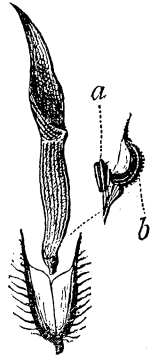
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slightly prolonged rachis, as seen in the accompanying sketch, in which the leaf is shown detached and raised above the glumes. On laying open one of these leaves, I find, in the majority of cases, seated on a minute prolongation of the rachis, three stamens; their immature green anthers lying side by side, and being subtended by a membranous bract having a narrow, green, minutely mucronate keel. This bract occupies the position of the superior palet; but, unlike the latter, it has a strongly pointed tip. In two instances, I detected a still further change in this bract, which, elevated yet higher within the investing sheath, had assumed the form shown at *b* in the annexed figure. Here, the structure was intermediate between that of a glume and that of the blade of a young leaf, the bract being carinate, and strongly compressed; having scarious margins, with about three veins on each side of the broad, dark green, minutely mucronate keel; and being tipped with a scabrous awn. At the base was a rudimentary sheath, and in the axil of this were seated the three stamens. The development of the sheath subsequent to the formation of the lamina in these instances is in accordance with observations already made by †Van Tieghem. In none of these monstrous flowers is there the least trace of ovary or of the scales which usually accompany it; but in every case the stamens are present. In the annexed figure, the metamorphosed flower is represented about double natural size; while the stamens (*a*) and the transformed superior palet (*b*) are shown magnified about four diameters.



W. R. GERARD.

§ 96. **Botanical News**—*The Color of Flowers*.—At a recent meeting of the Vaudois Society of Natural Science, says *La Nature*, Prof. Schnetzler read an interesting paper on the color of flowers. Hitherto it has generally been supposed that the various colors observed in plants were due to so many different matters—each color being a different chemical combination without relation to the others. Now, however, Prof. Schnetzler shows by experiment that when the color of a flower has been isolated by putting it in alcohol, one may, by adding an acid or an alkali, obtain all the colors which plants exhibit. Plants of paeony, for example, yield, when macerated in alcohol, a violet-red liquid. If some acid oxalate of potassa be added, the liquid becomes pure red; while soda changes it, according to the proportion used, into violet, blue, or green. In the latter case, the green liquid appears red by transmitted light, just as solution of chlorophyll does. The sepals of paeony, which are green, bordered with red, become wholly red when placed in a solution of acid oxalate (binoxalate) of potassa. These changes of color, which may be obtained at will, may quite well be produced in the plant by the same causes; since, in all plants, there always exist acid or alkaline matters. Further, it is stated that the transformation from green into red, observed in the leaves of many plants in autumn, is due to

†*Ann. des Sci. Nat.* Ser. 5, Tome XV., 1872, p. 236.

the action of the tannin which they contain, on the chlorophyll. Thus, without desiring to affirm it absolutely, Prof. Schnetzler supposes *a priori* that there is in plants only one coloring matter—*chlorophyll*, which, being modified by certain agents, furnishes all the tints that flowers and leaves exhibit. As for white flowers, it is well known that their cells are filled with a colorless fluid, opacity being due to air contained in the numerous lacunae of the petals. On placing the latter under the receiver of an air-pump, they are seen to lose their opacity and to become transparent as the air escapes from them.

Pilosity as a Teratological Phenomenon.—Hitherto, teratologists have considered undue pilosity, or the adventitious production of hair in plants, as a matter of minor importance, but M. Ed. Heckel, in a recent note to the French Academy (*Comptes Rendus*, xci., p. 349), insists that there are certain phases of this sort of change in plants which have a higher significance than that of a simple variation. He proposes to divide the phenomenon into the following three categories:

(1.) *Physiological Pilosity*, which includes the formation of hairs, or the increase in number of these, on the parts of plants where they are normally present, or even entirely wanting. Such cases are oftenest seen when plants change their habitat from a wet to a dry soil. This sort of physiological adaptation takes place within quite narrow limits; and it varies from glabrousness to pilosity unaccompanied by any alteration of specific characters.

(2.) *Teratological Pilosity*, which begins at the moment the specific habit is altered, and acquires its maximum when the modifications are profound enough to suggest the idea of a new species. A large number of conditions capable of producing nutritive troubles in plants may give rise to this peculiar phenomenon, which M. Heckel proposes to introduce into teratological literature under the distinctive term of “Deforming Pilosity” (*Pilosisme deformant*).

(3.) *Pilosity due to the Sting of Insects or to Organic Variations*, which is clearly distinguished from the former in being very localized (e. g. certain galls, the filaments of *Verbascum* with aborted anthers, etc.,) and which cannot change the habit of the species.

Of changes due to *deforming pilosity*, M. Heckel gives two prominent examples which he has studied, *Lilium Martagon*, L., and *Genista aspalathoides*, Lam. The alterations in the last-named plant are so profound that its monstrous state has even been described by De Candolle as a species, under the name of *G. Lobelii*; while by Morris it has been regarded as a marked variety, and named by him var. *confertior*.

§ 97. **Publications.**—*Arboretum Segrezianum, Icones Selectae Arborum et Fruticum in Hortis Segrezianis Collectorum*. Descriptions of figures of new, rare, or critical species of the Arboretum of Segrez. By Alphonse Larallée. We are indebted to Mr. F. W. Christern for a specimen copy of *Livraison I* of this magnificent work. It contains six plates as follows: I and II. *Juglans Sieboldiana*, Maxim; III. *Ostryopsis Davidiana*, Decaisne; IV. *Elaeagnus longipes*, Gray; V. *Crataegus cuneata*, Sieb. & Zucc.; VI. *Jamesia Americana*, T. & G., Flor. N. Amer. Vol. I (not II) p. 593. The work will form two volumes 4to, Jésus (fol. 11 x 15 inches) of 60 plates each; and there will be published every three months one *livraison*, of 6 plates with descriptive text, at 10 francs each.